

REMARKS/ARGUMENTS

As a result of this Preliminary Amendment, claims 1-5 and 14-16 are under active consideration in the subject patent application. A Request for Continuing Examination (RCE) application has been filed in conjunction with this response to the Final Official Action mailed on August 14, 2006. The Director is hereby authorized to charge the RCE fee required under 37 CFR 1.17(e), namely \$790.00, to Deposit Account No. 04-1679.

In the Final Action, the Examiner:

- 1) acknowledged Applicants' election of Species I, Figs. 1-6a, without traverse;
- 2) rejected claims 1-3, 5, 14-16 as being either anticipated under 35 U.S.C. §102(b) or allegedly obvious under 35 U.S.C. §103(a) in view of U.S. Patent No. 5,198,889, issued to Hisano et al. (the "Hisano reference"); and
- 3) rejected claim 4 under 35 U.S.C. §103(a) over the Hisano reference as applied to claim 1, in view of either U.S. Patent No. 6,981,543, issued to Chesser (the "Chesser reference") or U.S. Patent No. 6,615,912, issued to Garner (the "Garner reference") or U.S. 4,785,875, issued to Meijer (the "Meijer reference");

With regard to Item 1, no response appears necessary.

With regard to Item 2-3, Applicants have amended claims 1-5 and 14-16 so as to more distinctly define the present invention in view of the prior art relied upon by the

Examiner in the Final Official Action mailed August 14, 2006. Support for these changes to the claims may be found throughout the specification and drawings as filed. No new matter has been entered into the application as a result of these changes to the claims. Amended claims 1-5 and 14-16 are patentable over the prior art of record for the following reasons. Applicants claim a heat transfer device for removing heat energy from a plurality of heat loads that includes a heat exchange structure that contains a working fluid in a substantially closed envelope. The closed envelope defines at least one evaporator and at least one condenser that are coupled by a vapor line and a liquid return line to provide a circulating path for the working fluid, through vaporization of a liquid phase of the working fluid at the evaporator, condensation of a vapor phase of the working fluid at the condenser, and return of the working fluid from the condenser to the evaporator through said liquid return line. The evaporator also defines a reservoir for the liquid phase of the working fluid that is positioned below a turret that defines a vapor accumulator arranged in flow communication with the vapor line and the liquid return line. The evaporator further includes two spaced-apart evaporation chambers for application of heat energy from distinct ones of the heat loads. The two spaced-apart evaporation chambers are commonly supplied with the liquid phase of the working fluid from the reservoir that is located between the two evaporation chambers and below the vapor accumulator. None of the foregoing structure may be found in the Hisano, Chesser, Garner, or Meijer references alone, or in any valid combination with one another.

More particularly, the Examiner has relied upon the disclosure associated with figures 25 and 26 of Hisano in support of his obviousness allegations. Figure 25 of Hisano relates to an apparatus for cooling a plurality of semiconductor chips (1) that are attached to a substrate (2) with a cap (65) into which is sealed a working fluid (60) and which is mounted on an upper surface of each semiconductor chip. A thermally conductive sheet (62) is located on a bottom surface of the cap in contact with each of the semiconductor chips. A slanting communicating vessel (67) is formed over the cap, with a top end of the communicating vessel communicating with the upper portion of one side surface of the cap. The other end of the communicating vessel communicating with the lower portion of the other side surface of the cap. A plurality of hollow fin support columns (67a) on which a plurality of fins (68) are mounted is integrally formed on the slanting portion of the communicating vessel. Heat generated in the semiconductor chips is transmitted through the sheet to a working fluid (60) in the cap. The working fluid is then vaporized by the heat and rises into the fin support columns through the communicating vessel. Because the fin support columns are cooled by the fins, after the vapor of the working fluid has given up its heat and condensed, it descends into the cap through the communicating vessel.

Figure 26 shows an operationally similar device to that of Figure 25, but with the heat generating chips and sheet arranged edge-wise. Here, communicating vessel (73) is integrally formed with a hollow fin support column (73a) on which a plurality of fins (72) are mounted, and is connected in the longitudinal direction parallel to the cap (70). One end of the communicating vessel communicates with the upper part of the cap

while the other end of the communicating vessel 73 communicates with the lower part of the cap. Significantly, and contrary to the Examiner's annotated figures in the Official Action, Figure 26 does not disclose a turret¹ of any kind.

These embodiments of Hisano's invention do not include or suggest a liquid reservoir that is positioned below a turret within which is defined a vapor accumulator arranged in flow communication with a vapor line and a liquid return line. Furthermore, there is simply no suggestion whatever in Hisano of an evaporator that includes two spaced-apart evaporation chambers for application of heat energy from distinct ones of the heat loads, where the two spaced-apart evaporation chambers are commonly supplied with liquid working fluid from the reservoir that is located between the two spaced-apart evaporation chambers and below the vapor accumulator.

Importantly, although each of the Chesser, Garner and Meijer references may discuss the advantages of applying a wick material as suggested by the Examiner, none teachings that are missing from the Hisano reference are supplied or suggested in any way by these references, whether taken alone, or in any valid combination with Hisano.

Claims 1-5 and 14-16 are patentable over all of the prior art of record in this application.

¹ A structure that is well known to those skilled in the art to be a small rounded tower that projects from a wall.

If a telephone conference would be of assistance in advancing prosecution of the above-identified application, Applicant's undersigned Attorney invites the Examiner to telephone him at 215-979-1255.

Respectfully submitted,

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